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Supplementary Notes on the Genus Trychosis

(Hymenoptera, Ichneumonidae, Agrothereutina)

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Abstract

Two new species of *Trychosis* FÖRSTER, 1868 are proposed: *Trychosis insularis* sp. n., an isolated taxon from the Frisian Island Memmert and *Trychosis timenda* sp. n. with specimens from Italy, Spain and Sweden.

Of *Trychosis legator* (THUNBERG, 1822) three forms are distinguished, viz., *Trychosis legator* forma *specialis* f. n.; *Trychosis legator* forma *plebeja* (TSCHEK) based on the lectotype of *Cryptus plebejus* TSCHEK, 1870a and *Trychosis legator* forma *picta* (THOMSON, 1873) based on the lectotype of *Goniocryptus pictus* THOMSON, 1873. These three forms and the nominate form are singled out in the key to the females. Males of these forms are not recognized.

The Type species of the Genus Trychosis is Cryptus ambiguus TSCHEK, 1870 (Opinion 1017, 1974). Cryptus mesocastanus TSCHEK, 1870 is a senior synonym of Cryptus ambiguus TSCHEK.

Methods

External measurements (viz., length ovipositor beyond tip of gaster; length front wing) were taken with an ocular micrometer $(20\times)$ on a Beck (Kassel) binocular low power microscope. Most relative measurements made for comparison of parts were taken at an enlargement of $40\times$.

Abbrev.: ZSM - Zoologische Staatssammlung München

Introductory remark

Specimens from the Island of Memmert (German Frisian Islands) which seem to represent *Trychosis legator* (THUNBERG) show some invariable characters which allow the conclusion that these specimens belong to a separate taxon viz., *Trychosis insularis* sp. n.

In this connection Goniocryptus pictus THOMSON, 1873 has to be taken into consideration. The lectotype of this species was determined as Trychosis legator (THUNBERG) (VAN ROSSEM, 1966). Re-examination of this specimen shows the next distinctive features: postanellus $4.0 \times$ as long as apically wide. The average figure for this character in Trychosis legator is $4.0-5.0 \times$. In Trychosis insularis it amounts to $5.5-7.0 \times$. The hind femur is brown in colour in Trychosis picta. In Trychosis insularis the hind femur is bright orange.

The only character deserving attention is the orange base of tergite four in *Trychosis picta*. In this paper THOMSON'S species (Goniocryptus pictus) is interpretet as a form of *Trychosis legator* (THUNBERG).

1. Trychosis insularis sp. n.

Holotype (Q): Memmert, FS 12/G, 7–14.8.1985; B.R.D., Ostfriesische Inseln, Mellum-Memmert, leg. V. HAESELER. Coll. ZSM. Paratypes 3 QQ, 3 ♂♂. Female: Memmert, FS 11/W, 11.–18.8.1986 and male: Memmert, FS 4/G, 22.–30.7.1986. Coll. ZSM. Female: Memmert, FS 4/W, 30.7.–5.8.1986 and male: Memmert, FS 11/W, 7.–14.7.1985, leg. V. HAESELER. Coll. HORSTMANN, Würzburg. Female: Memmert, FS 4/W, 30.7.–5.8.1986 and male: Memmert, FS 11/G, 11.–18.8.1986, leg. V. HAESELER. Coll. VAN ROSSEM.

Characteristics of the holotype. Front wing 5.82 mm long. Palpi brown. Head black. Malar space coriaceous, wide. Clypeus convex, with rough sculpture, the apical margin polished. The line between the lower edges of eyes cuts through the clypeal bulge. Face and frons with rough sculpture, the antennal scrobes weakly developed, with wrinkled sculpture. Flagellum fuscous, but the first four segments ventrally with a reddish streak. Postanellus 6.4× as long as apically wide. Pronotum with rough sculpture, in part wrinkled. Mesoscutum closely punctured. Nervellus intercepted above the middle. Propodeum with rough sculpture. Basal transverse carina complete between the spiracles. Apical transverse carina medially vague, sublaterally with weak laminae. Mesopleurum with rough sculpture. All coxae and trochanters black. All femora, front and middle tibiae, orange in colour. Hind tibia with 0.6 of length orange in colour, the tip black. First, second and third gastral segment orange in colour, basal margin of fourth tergite orange. Remaining part of gaster black. Ovipositor 0.22 of length of front wing, 1.33 mm beyond tip of gaster.

Characteristics of a male paratype (Memmert, 22.-30.7.1986). Front wing 5.91 mm long. Palpi brown. Head black. Malar space coriaceous, wide. Clypeus convex, roughly punctured, the apical margin flattened and polished. The line between the lower edges of eyes cuts through the clypeal bulge. Face and frons roughly sculptured, the antennal scrobes weak. Flagellum fuscous, tyloids on flagellar segments 11-18. Postanellus $5.2 \times$ as long as apically wide. Sculpture of pronotum, mesoscutum and mesopleurum agreeing with the female. Nervellus intercepted above the middle. Propodeum dorsally more roughly wrinkled than in the female. Both transverse carinae complete, the apical transverse carina robust. All coxae and trochanters black. All femora, front and middle tibiae orange in colour. Base of hind tibia orange, remaining part fuscous. Tarsi more brownish, hind tarsi darker. Petiole black, tip of postpetiole orange, second and third tergites orange in colour. Remaining part of gaster black, including the claspers

	length/width postanellus	length ovipositor/ length front wing	ovipositor beyond gaster	nervellus intercepted	length front wing
Memmert 1118. 8. 86	5.5×	0.21	1.02 mm	above middle	4.75 mm
Memmert 30. 75. 8.	6.0×	0.25	1.33 mm	above middle	4.80 mm
Memmert 30. 75. 8.	7.0×	0.23	1.28 mm	above middle	5.51 mm

Table 1. Important characters of three female paratypes.

2. Trychosis timenda sp. n.

An undescribed species of *Trychosis* was found in material from Italy, Spain and Sweden. The specimens are characterized by the interception of the nervellus, distinctly above the middle, the slender postanellus ($5.2 \times$ as long as apically wide) and the long ovipositor (0.31 of the length of the front wing).

Holotype (O^{*}): Italy, Lagolo, Trento, 960 m, B/1.5. 1966, leg. E. HAESELBARTH. Coll. ZSM.

Paratypes 1 Q, 1 C³: Spain, female, Villena (Alicante), 12.8.1987; male Altea (Alicante), 25.4.1987. Both leg. & coll. S. BORDERA SANJUAN, Valencia.

Not a paratype: Sweden, male, Stöllet, Värmland, 30.6.-19.7.1975, leg. & coll. VAN ROSSEM, Ede.

Characteristics of the holotype. Front wing 5.77 mm long. Palpi brown. Maxillary palpi slender, long. Entire head, including mandibles, black. Clypeus convex, strongly punctate. The groove between face absent. Face closely and roughly sculptured. Malar space wide and coriaceous. Antennal scrobes well developed and with transverse sculpture. Frons roughly sculptured. OOL region (ocular-ocellar) coriaceous and with punctures. Antenna with tyloids on flagellar segments 10-16. Postanellus 3.6× as long as apically wide. Gena roughly punctured and with erect setae. Thorax all over roughly sculptured, only scutellum more widely punctured. Notaulus and sternaulus absent. Prepectal carina present to lower 0.3 of mesopleurum, not reaching the margin. No tooth present opposite the posterior angle of pronotum. Basal transverse carina of propodeum present the apical transverse carina obsolete. Areolet large, square in shape. Nervulus widely distad of basal vein. Nervellus intercepted above the middle. All coxae and trochanters, including middle and hind femora and hind tibia fuscous. Front femur 4.0× as long as wide. The front femur dorsally, front and middle tibia and tarsi yellowish brown, but 2nd, 3rd and 4th segments of middle tarsus white. The basal segment of hind tarsus fuscous, 2nd segment ventrally, 3rd and 4th white, apical segment fuscous. Petiole and postpetiole long and slender, the spiracles at 0.61 of the length. Postpetiole brownish, the second and third tergite orange in colour, the other tergites and sternites black.

Characteristics of the female paratype. Front wing 4.66 mm long. Entire head black, sculpture the same as in the male. Postanellus $5.2 \times$ as long as apically wide. Sculpture of thorax corresponding with that of male. Notaulus and sternaulus slightly developed. No tooth present opposite the posterior angle of pronotum. Basal and apical transverse propodeal carinae present. Nervulus slightly distad of basal vein. nervellus intercepted above the middle. The coloration of legs the same as in the male, no white segments of middle and hind tarsus present. The front femur $4.2 \times$ as long as wide. Postpetiole polished, somewhat brownish in colour. The second, third and base of fourth tergite orange in colour. The apex of gaster black. Ovipositor 0.31 of the length of front wing, surpassing tip of gaster with 1.4 mm.

Etymology: "timendus" is the Latin for "formidable, terrible".

3. Trychosis legator s. l. (THUNBERG)

Ichneumon legator THUNBERG, 1822: 268. Trychosis legator; VAN ROSSEM, 1966: 24–33.

Introductory remark

Trychosis legator is a variable species. In the first place the length of the front wing in females runs from 3.9 to 8.0 mm. Also specimens occur with white marking of the flagellar segments 7–10, while these specimens may have tergite four, either with the apical half fuscous, or completely orange in colour. These two forms are inserted, respectively as *Trychosis legator* (THUNB.) forma *specialis* f. n. and *Trychosis legator* forma *plebeja* (TSCHEK). Both are introduced in the key to females. At present there is no definite motive to interpret them as separate subspecies, although there is no clear explanation for their occurrence.

The colour of tergite four also varies in the nominate form (n. b. specimens without the white marking of the flagellum). These two forms are distinguished as *Trychosis legator* forma *picta* (THOMSON, 1873) and *Trychosis legator* forma *legator* (THUNBERG).

Note. In *Trychosis legator* the first gastral segment can be entirely orange or petiole black and postpetiole orange, tergite two and three, without exception, orange.

4. Trychosis legator (Thunberg) forma specialis f. n.

Holotype (Q): España, Guadelupe, 1.7.1968, leg. P. M. F. VERHOEFF. Coll. ZSM.

Paratypes 299: España, Toledo, 9.–10.6.1968, leg. P. M. F. VERHOEFF; Netherlands, Otterlo, 11.8.1972, leg. B. VAN AARTSEN. Both coll. VAN ROSSEM, Ede.

This form is characterized by the white marking of flagellar segments 7-8-9 (10 in part) and front half of tergite four orange with apical half black.

The type specimens represent the only available material.

5. Trychosis legator (THUNBERG) forma plebeja (TSCHEK)

Cryptus plebejus TSCHEK, 1870a: 147. Cryptus rusticus TSCHEK, 1870b: 421–422.

Type specimen of this form is the lectotype of *Cryptus plebejus* (Naturhistorisches Museum, Wien). The lectotype of *Cryptus rusticus* (Naturhistorisches Museum, Wien) agrees with *Cryptus plebejus*.

This form is characterized by the white marking of flagellar segments (7)-8-9 and tergite four entirely orange in colour.

Distribution. Widely spread in the Palaearctic Region.

6. Trychosis legator (THUNBERG) forma picta (THOMSON)

Goniocryptus pictus THOMSON, 1873: 494

Type specimen of this form is the lectotype of Goniocryptus pictus (Zoologisk Museum, København).

This form is characterized by the flagellum without white marking. The front half of tergite four is orange in colour with the apical half fuscous.

Two other specimens are on hand: Carpentras (Vaucluse), France (with vague white spot on flagellar segment 9) and Kemperberg (Hoge Veluwe), Netherlands.

7. Trychosis legator (Thunberg) forma legator (Thunberg)

Ichneumon legator THUNBERG, 1822: 268. Cryptus inimicus TSCHEK, 1870a: 147–148.

Type specimen of the nominate form is the holotype of *Ichneumon legator* in the Zoological Institute at Uppsala (Sweden). The holotype of *Cryptus inimicus* agrees with THUNBERG's specimen.

This form is characterized by the flagellum without white marking and tergite four entirely orange in colour.

Distribution. This form is widely spread in the Palaearctic Region.

Key to Trychosis females

-	Gaster with normal laterotergites. Spiracles of tergite two nearer to lateral margin than to hind margin. (In case of daubt and with a short postanellus, $3.0-3.3 \times$ as long as wide, see couplets 5 and 6)	2
2.	A tooth present on prepectus opposite posterior angle of pronotum (fig. 2). Nervellus intercepted above the middle	3
-	No tooth present on prepectus. A carina or slight lamina can be present proximad of prepectal carina	5
3.	Thorax hunchbacked (fig.3). Tergite two polished, hairs and microsculpture widely placed. Ovipositor 0.16-0.21 of length front wing Trychosis priesneri VAN ROSSEM	
-	Thorax not conspicuously elevated over the level of ocelli	4
4.	Larger specimens, front wing 7.0–7.4 mm long. Central part of face rugose or with coarse punctation, if microsculpture is present, it is vague <i>Trychosis tristator</i> (TSCHEK)	
-	Smaller specimens, front wing approximately 0.75 of length of front wing in <i>T. tristator</i> . Central part of face with conspicuous microsculpture between and in the punctures. A small form of <i>T. tristator Trychosis tristator</i> TSCHEK forma glabricula (THOMSON)	
5.	Front femur stout, not more than $3.6 \times$ as long as wide (fig. 4). In case of doubt, the postanellus is not exceeding $3.3 \times$ as long as apically wide	6
-	Front femur more elongated, longer than $3.6 \times$ the width. In case of doubt the postanellus is more than $3.5 \times$ as long as apically wide	8
6.	Radial cell long; width: length = 1:4.7 (fig. 5). Front femur $3.5 \times$ as long as wide. Laterotergites rather wide. Flagellum with white marking. Postanellus $2.7 \times$ as long as apically wide	
_	Radial cell more bulging; width: length = 1:3.8 (fig. 6).	7
7.	Laterotergites somewhat widened (fig. 7). Spiracles of tergite two $2.0 \times$ as far from hind margin as from lateral margin (20:11). Flagellum with white marking. Postanellus $3.0-3.2 \times$ as long as apically wide. Front femur stout, $3.0-3.1 \times$ as long as wide	
-	Laterotergites normal. Spiracles of tergite two $2.5 \times$ as far from hind margin as from lateral margin. Flagellum with white marking. Postanellus $3.0-3.2 \times$ as long as apically wide. Front femur stout, $3.0-3.4 \times$ as long as wide	
8.	Flagellum with white marking	9
-	Flagellum without white marking	11
9.	A line drawn between the lower edges of eyes runs through the clypeus (fig. 8). Head with conspicuous, long hairs, in particular on the gena. Ovipositor 1.7–1.8 mm beyond tip of gaster. In general large specimens, front wing at least 6.8 mm long	
-	A line drawn between the lower edges of eyes runs above the clypeal margin (fig. 9). The gena without conspicuous long hairs	10
10.	Tergite four with the apical half fuscous. Flagellar segments $7 - 8 - 9$ (10) marked white. Nervellus intercepted in the middle. Ovipositor 0.26-0.28 of the length of front wing and 1.5-1.6 mm beyond tip of gaster. Front wing 5.0-6.4 mm long	
-	Trychosis legator (THUNBERG) forma specialis f. n. Tergite four orange. Flagellar segments $(7) - 8 - 9$ marked white. Nervellus intercepted in the middle or slightly below. Ovipositor 0.24–0.31 of the length of front wing and 1.4–	

	2.0 mm beyond tip of gaster. Front wing 4.6–6.4 mm long	
11.	Nervellus intercepted distinctly above the middle (ratio 5:12). Postanellus $5.2 \times$ as long as apically wide. The apical transverse carina of propodeum is completely present. Ovipositor 0.31 of the length of front wing and 1.4 mm beyond the tip of gaster	
_	Nervellus intercepted below or in the middle or above the middle (ratio 4:8 or 5:10)	12
12. -	Postanellus $4.0-5.0 \times$ as long as apically wide. Nervellus intercepted below or in the middle Postanellus $5.5-7.0 \times$ as long as apically wide. Nervellus intercepted in the middle or above	
13.	Specimens with front wing $3.9-5.3$ mm long. Tergite four with front half orange in colour, the apical half fuscuous. Postanellus $4.0-4.4 \times$ as long as apically wide	
14.	Hind femur bright orange. Tergite four black. Postanellus $5.5-7.0 \times$ as long as apically wide. Nervellus intercepted above the middle. Ovipositor $0.21-0.25$ of the length of front wing and $1.0-1.3$ mm beyond tip of gaster	
-	Hind femur ferruginous. Apical half of tergite four fuscous. Postanellus $5.6 \times$ as long as apically wide. Nervellus intercepted in the middle. The microsculpture of tergites two and three more strongly developed than in <i>T. legator</i> . Ovipositor 1.8 mm beyond tip of gaster	
	Trychosis ingrata (TSCHEK)	

Key to Trychosis males

Males of *Trychosis gradaria*, *T. atripes* and *T. ingrata* are unknown. Neither are males known of the forms included in the key to females.

1.	A tooth present on prepectus opposite posterior angle of pronotum (fig. 2). Nervellus intercepted above the middle	2
-	No tooth present on prepectus, at most a slight ledge	4
2.	Thorax hunchbacked (fig. 3). Front an middle tibiae with a vague ivory coloured streak. Basal segment of hind tarsus 0.40–0.46 of the length of hind tibia. Hind leg fuscous. No tarsal segments white	
-	Thorax not conspicuously elevated over the level of ocelli. Front and middle tibiae without ivory streak. Basal segment of hind tarsus 0.50 of the length of hind tibia. Some tarsal segments of middle and hind leg, or only of hind leg, white	3
3.	Face coarsely punctured to rugose, microsculpture (if present) vague. Frons rugose. Tyloids on flagellar segments 13–18. Segments two, three and four of hind tarsus white <i>Trychosis tristator</i> (TSCHEK)	
-	Face rugose, with microsculpture. Frons rugose. Tyloids on flagellar segments 12–17. Segments three and four of middle tarsus and three and four of hind tarsus white. The characters are tentative <i>Trychosis tristator</i> (TSCHEK) forma <i>glabricula</i> (THOMSON)	
4.	Postanellus not more than $2.5 \times$ as long as apically wide. Tyloids on flagellar segments 10–20 (the last three minute). Nervellus intercepted far below the middle. Head and thorax pubescent	

-	Postanellus more than $2.5 \times$ as long as wide	5
5.	Tyloids on flagellar segments 13 (14)–21 (22). A line drawn between the lower edges of eyes runs above the clypeal bulge. Nervellus intercepted over the middle. Male not known with certainty. The characters are inserted tentatively <i>Trychosis neglecta</i> (T_{SCHEK}) The following males may show characters which in part agree with those in item 5 ^a	
_		6
6.	The line drawn between the lower edges of eyes runs through the clypeal bulge (fig. 8). Tyloids on flagellar segments 13–19. Maxillary palpi white. Gena with conspicuous hairs. Front and middle trochanters with a white spot. Apex of hind basitarsus and hind tarsal segments two, three and four white <i>Trychosis mesocastana</i> (Tschek)	
-	The line drawn between the lower edges of eyes almost reaches the upper part of clypeus. Tyloids on flagellar segments preceding segment no 13. Maxillary palpus not white. Front	
	and middle trochanters more often without a white spot	7
7.	Tarsal segments three and four of middle and hind leg white or apex of basitarsus and segments two, three and four of middle tarsus white and segments two, three and four of hind tarsus white. Apex of postpetiole and tergites two and three orange – red in colour	
-	Tarsal segments of middle and hind tarsus not white. Apex of postpetiole and tergites two and three and base of four, or tergite four completely orange in colour	8
8.	Tyloids on flagellar segments $11-17$ (18). Postanellus $4.2-5.2 \times$ as long as apically wide. In most specimens the nervellus intercepted above the middle. Apex of postpetiole and tergites two, three and in some specimens base of tergite four orange in colour. Hind femur orange	
-	Tyloids on flagellar segments 10 (11)–16 (17). Postanellus $4.0-4.5 \times$ as long as apically wide. Nervellus intercepted in the middle or slightly below. Apex of postpetiole and tergites two, three and four orange in colour or apical half of tergite four fuscous. Hind femur black	

Zusammenfassung

In dieser Arbeit werden zwei neue Arten der Gattung *Trychosis* Förster, 1868 neu beschrieben, nämlich: *Trychosis insularis* sp. n., ein isoliertes Taxon der ostfriesischen Insel Memmert und *Trychosis timenda* sp. n. aus Italien, Spanien und Schweden.

Von Trychosis legator (THUNBERG, 1822) sind drei Formen gedeutet, namentlich: Trychosis legator forma specialis f. n.; Trychosis legator forma plebeja (TSCHEK), gegründet auf den Lectotypus von Cryptus plebejus TSCHEK, 1870a und Trychosis legator forma picta (THOMSON), gegründet auf den Lectotypus von Goniocryptus pictus THOMSON, 1873. Diese drei Formen und die nominate Form sind aufgestellt in der Tabelle der Weibchen. Männchen dieser Formen sind unbekannt.

Typus-Art der Gattung Trychosis ist Cryptus ambiguus Tschek, 1870a (Opinion 1017, 1974). Cryptus mesocastanus Tschek, 1870 ist senior Synonym von Cryptus ambiguus Tschek.

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Dr B. PETERSEN (Zoologisk Museum, København, Danmark) kindly placed at my disposal the type material of *Goniocryptus pictus* Thomson. Dr M. FISCHER (Naturhistorisches Museum, Wien, Österreich) obligingly made the type material of *Cryptus inimicus* TSCHEK and *Cryptus rusticus* TSCHEK available for my purpose.

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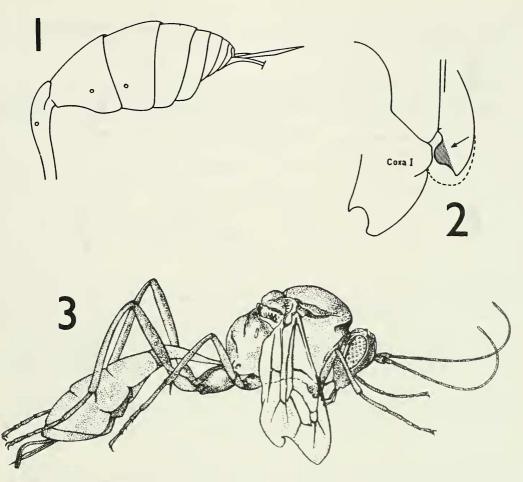
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Figures 1–9. Various details of *Trychosis*. Fig. 1, *Trychosis neglecta*, broad laterotergites. Fig. 2, *Trychosis tristator*, tooth on prepectus. Fig. 3, *Trychosis priesneri*, thorax hunchbacked. Fig. 4, *Trychosis atripes*, front femur. Fig. 5, *Trychosis gradaria*, left front wing. Fig. 6, *Trychosis atripes*, right front wing. Fig. 7, *Trychosis atripes*, laterotergites somewhat widened. Figures 8 & 9, line drawn between lower edges of eyes (frontal and lateral aspect of head). Fig. 8, *Trychosis mesocastana*. Fig. 9, *Trychosis legator* forma *plebeja*. Figures 1. 2, 4–9 after VAN ROSSEM (1966). Figure 3 after VAN ROSSEM (1971)

